76: Yuncker N-4,5 (1953) 1959 OU9 Tonga OU9

137 **Panicum decompositum** R. Brown, Prodr. Fl. Nov. Hollandiae, 191, 1810.

Somewhat tufted, erect grass, flowering culms up to 50 cm. or more long, glabrous. Blades linear, up to 20 cm. or more long and 7 cm. wide, acuminate, sparsely pubescent. Spikelets 2-3 mm. long, on long, capillary, scabrous branches in an open panicle up to 30 cm. long and nearly as wide.

'Eua: occasional scattered plants in open grazing area above Fuai, Mar. 24, 1953, *Yuncker 15456.*

Infrequent. Central and western Australia.

Panicum maximum Jacquin, Icon. Pl. Rar. 1: pl. 13, 1781-1786.

Erect, coarse grass, up to 3 m. tall, stems up to 1 cm. thick near base, bearded at nodes. Blades linear-lanceolate, acuminate, up to 30 cm. or more long and 1.5 cm. wide, margin strongly serrate-scabrous. Spikelets 2-3 mm. long, green or purplish, on slender pedicels in large, diffuse panicles up to 30 cm. long, branches very slender.

Tongatapu: roadside east of Ma'ofanga, Oct. 29, 1951, *Hürlimann 22;* forming large colonies along road near Lavengatonga village, Mar. 6, 1953, *Yuncker 15175.*

Lifuka: about mid-island along road between Pangai village and eastern shore, Apr. 27, 1953, *Yuncker 15768.*

[824] [246] Introduced as fodder grass but becoming established throughout Tonga. Widely cultivated.

Panicum trigonum Retzius, Observ. Bot. 3: 9, 1783.

This species was reported by Hemsley on the basis of a United States Exploring Expedition specimen; but no specimen of this species collected by the expedition can be found in the United States Herbarium and there is some question regarding the occurrence of the species in Tonga.

Genus Cyrtococcum Stapf

Cyrtococcum oxyphyllum (Hochstetter) Stapf, Hook. Icones, pl. 3096, 1922.

Decumbent, spreading grass, branching and rooting from lower nodes, stems slender, ascending to 40 cm. or more tall. Blades lanceolate, acuminate, 10-12 cm. long and 1 cm. wide, margins somewhat scabrous, sheath and lower surface puberulent. Spikelets about 1.5-2 mm. long, in dense, terminal panicles up to 10 cm. long.

Tongatapu: *Moseley;* weed in banana plantation near Nualei village, Mar. 9, 1953, *Yuncker 15234.*

Vava'u: *Barclay; Crosby;* on forested slope above northern shore of Lake Anovai, at southwestern end of island, May 19, 1953, *Yuncker 16047;* in clearing of old plantation at top of Talau, west of Neiafu, May 24, 1953, *Yuncker 16152.*

Occasional throughout Tonga. South Asia, Philippines, Pacific islands.

Panicum pilipes Nees in Hemsley's and Burkill's lists.

76: Yuncker N-4,5 (1953) 1959 OU9 Tonga OU9

Genus **Cymbopogon** Sprengel

137 **Cymbopogon refractus** (R. Brown) A. Camus, Rev. Bot. Appl. Agric. Colon. 1: 279, 1921.

Tufted, somewhat aromatic grass, culms up to 1 m. tall. Blades linear, about 5 mm. wide and 30 cm. or more long, attenuately acuminate. Spikelets 5-6 mm. long, in pairs, one sessile, one pedicellate, in short, paired, spreading, racemes, these usually partly enclosed in sheath.

Vava'u: in grassy plain along upper rim of steep coastal cliff above Leimatua, May 20, 1953, *Yuncker 16069*.

Infrequent. New Caledonia, Fiji to eastern Polynesia.

Genus **Sorghum** Moench

Sorghum halepense (Linnaeus) Persoon, Syn. Pl. 1: 101, 1805.

Coarse grass with stems up to 1.5 m. tall, arising from stout creeping rootstocks. Blades up to 2 cm. wide, rather long, margin scabrous. Spikelets ovate, about 5 mm. long, silky hairy, with an awn up to 1.5 cm. long, abruptly bent at about middle, strongly twisted in lower part, in large open panicles up to 30 cm. or more long.

Tongatapu: near Nualei, Oct. 29, 1951, *Hürlimann 33, 50;* in old clearing near Fu'amotu village, Mar. 4, 1953, *Yuncker 15163*.

'Eua: in second-growth area, along trail between Pangai and Fuai, Mar. 25, 1953, *Yuncker 15476*.

Lifuka: in roadside ditch, along coastal road north of Pangai village, Apr. 25, 1953, *Yuncker 15722*.

824 246 Introduced as a forage plant but becoming established in waste areas throughout Tonga. Widely cultivated.

Tongan name: *kola*.

Genus **Rhaphis** Loureiro

Rhaphis aciculata (Retzius) Desvaux, Opusc., 69, 1831.

Small, decumbent grass, stems creeping and rooting at nodes, somewhat turf-forming, flowering stems ascending up to 25 cm. or more tall. Blades up to 10 cm. or more long and 5 mm. wide, linear, acuminate, mostly basal, margin scabrous. Spikelets purple, pilose at base, 4-5 mm. long, narrowly lanceolate, some of glumes with barbed awns, in narrow paniculate clusters up to 5 cm. or more long, branches slender, whorled or scattered.

Tongatapu: *Home;* along path, Nualei village, Oct. 29, 1951, *Hürlimann 26;* in grassy area in Lavengatonga village, Mar. 6, 1953, *Yuncker 15185*.

'Eua: in grazing area near center of island, Mar. 22, 1953, *Yuncker 15416*.

Vava'u: *Crosby*.

Tafahi: roadside between Tafahi and Faihavanui, Dec. 15, 1951, *Hürlimann 529*.

A common weed in open grassy areas throughout Tonga. Tropical Asia, Malaya, Polynesia.

76: Yuncker N-4,5 (1953) 1959 09 Tonga 0U9

Canavalia sericea A. Gray, U.S. Expl. Exped., Bot. 1: 140, 1854. 137

Trailing or climbing, densely silky-pubescent vine. Leaves alternate, trifoliate, leaflets rounded-ovate to subobovate, obtuse or slightly emarginate, base acutish or obtuse, up to 9 cm. long and nearly as wide. Flowers about 3 cm. long, short-pedicellate, in axillary, racemose clusters, corolla rose-colored; pod flattened, up to about 14 cm. long, one edge three-ridged.

Tongatapu: in strand thicket, near Vaini village, Feb. 26, 1953, *Yuncker 15050;* seaward side of strand thicket above Niutoua village, Mar. 2, 1953, *Yuncker 15143;* pioneering on sand, outer edge of seaside vegetation, near Blow Hole area below Houma village, June 1, 1953, *Yuncker 16220.*

'Eua: seaward margin of strand thicket, Apr. 1, 1953, *Yuncker 15597.*

Nomuka: strand thicket above village, Apr. 30, 1953, *Yuncker 15808.*

Lifuka: spreading on sand just above high-tide limit along eastern shore of island, Apr. 27, 1953, *Yuncker 15758.*

Frequent along the outer edge of the strand vegetation throughout Tonga. Polynesia.

Tongan name: *fue tahi veveli.*

Genus **Phaseolus** Linnaeus

Phaseolus adenanthus G. W. F. Meyer, Prim. Fl. Esseq., 239, 1818.

Slender, glabrous, or somewhat pubescent, twining, herbaceous vine. Leaves alternate, trifoliate, leaflets firm, oblong-ovate or ovate, acute, base obtuse or acutish, up to 14 cm. long and 6-7 cm. wide, three-nerved from base, midrib branched upward. Flowers up to 3 cm. long, white tinged with purple, short-pedicellate, in long-pedunculate, axillary, racemose clusters, flowers few and approximated near end of peduncle; pods linear, recurved, flat, up to 10 cm. long and 1 cm. wide.

Tongatapu: *Moseley.*

Vava'u: *Crosby;* climbing in thicket along road west of Leimatua village, northwest of Neiafu, May 19, 1953, *Yuncker 16021.*

Occasional. Pantropic.

Tongan name: *fue 'uta.*

Phaseolus aureus Roxburgh, Hort. Beng., 55, 1814; Fl. India, ed. 2, 3: 297, 1832.

Erect or climbing herb, stems furrowed and brown-pilose. Leaves alternate, trifoliate, leaflets broadly ovate, subrhomboid or suborbicular, rather thin, short-acute, stipules large, ovate. Flowers comparatively small, yellow, in clusters of four to six, at end of stout, villous peduncles; pod nearly cylindrical, up to 6-8 cm. long, somewhat curved, seeds nearly round, small, green or golden.

Vava'u: *Barclay.*

Rather widely cultivated as a vegetable or forage plant.

P. mungo L. in Hemsley's list [?].

[244] [246] [824]

Phaseolus semierectus Linnaeus, Mantissa 1: 100, 1767.

Erect, branching, subwoody, pubescent plant, up to 1.5 m tall, hairs more or less reflexed, branches rather long. Leaves alternate, trifoliate, leaflets narrowly ovate or

245
318
654
have been distributed by the Department of Agriculture as part of a reforestation scheme.

Common Weeds and Secondary Vegetation Species

137
[262]
There are a great number of common weed species found throughout Tongatapu in secondary vegetation associations, many of which are eaten or are used in some beneficial way (see Appendix E)[A] as well as serving as reliable indicators of both soil fertility and the period of time that land has been under fallow. Some of these weedy species are possibly native to Tonga, but a majority of them are post-European contact introductions which have become dominants in most secondary vegetation associations [246] [247] (Merrill, 1945: 119). In some cases, they were deliberate introductions as ornamentals or fodder grasses, such as Lantana camara, Panicum maximum, Rhynchelytrum repens, Melinis minutiflora and Mimosa pudica (Government of Tonga, 1949: 4; Yuncker, 1959: 62). The most common weed species on Tongatapu and the assumed places of origin are listed below:

A majority of the common weeds seem to be native to tropical America; these include: te'ekosi (Ageratum conyzoides); tu'ulapepe or vavae kona (Asclepias curassavica); fisi'uli (Bidens pilosa); misimisi (Canna indica); te'epulu or tengafefeka (Cassia tora); hefa (Cenchrus echinatus); piini or piisi (Crotalaria mucronata); lau veveli (Elephantopus mollis); 'akauveli (Indigofera

[A] [See Category 137, pp. 377-431--Analyst.]

235 654 hatchery to sell day-old chicks to farmers at half the current price of imported stock and the construction of slaughtering facilities at the Government Farm in Vaini.

233 654 The Cattle Subsidy Scheme, which was initiated in 1972, is a long-term project designed to make Tonga self sufficient in beef production. The Scheme subsidizes barbed wire fencing, a reticulated water system, and the clearance of land; it plans to distribute heifer calves at a subsidized price to members of the Scheme who meet minimum standards. The minimum size allotment required for membership in the scheme is 4 acres, although as of December 1971, 35 farmers who had been accepted by the Scheme had allotments averaging the standard 8 1/4 acres (Department of Agriculture, 1971:37-38). 233 654 Also under the Cattle Subsidy Scheme is a pasture improvement program, under which sirato (Phaseolus atropurpureus), pangola grass (Digitaria decumbens), Para grass (Brachiaria mutica), and elephant grass (Pennisetum purpureum) have been introduced (Nusbaum, 1972). 246

232 231 654 [439] In addition to these primary schemes, the Department of Agriculture has also imported Santa Gertrudis, Hereford, and Friesian bulls and other cattle as well as high quality pig breeding stock to upgrade local stock through "Honeymoon Schemes" where farmers bring their animals to the Government Farm to be mated to these animals. In another program, stallions are taken to villages where they are bred to local

98: Rowlands U-3 (no date) 1961
OU9 Tonga OU9

SATURDAY, November 12, was an important day for the members of the Tongan Women's Association, "KO E LANGA FONUA 'A E FEFINE TONGA", for it was the day of their Annual Show. Anxious glances had been cast at the sky, for the Show was to be held in the open air and the weather for some days had been uncertain. However, although the day was overcast, no rain fell and all was well.

Her Majesty Queen Salote Tupou, G.C.V.O., G.B.E., who is President of the Association and who has not missed a Show since the first one was held seven years ago, inspected the exhibits. She congratulated the women on the steady improvement in the quality of the work which had been shown throughout the years.

The Tongan handwork included mats, trays, baskets of various shapes, dress materials printed with island dyes, Tongan curtains and cushions and articles made from shells. A new section this year was that for baby baskets. Other items were soap, starch, buttons and ornaments made from Tongan materials.

The sewing section had men's coats and shirts, children's clothing, embroidered dresses, knitted articles, patchwork quilts and fancy work of various kinds. The cookery section included cakes, scones, bread, jams and jellies, cordials, puddings and various Tongan delicacies.

Evidence of the various interests which had been encouraged among the

[P.34-C]

women was given by the baskets of fruit and vegetables, and the collections of flowers from members' own gardens, as well as by the poultry, eggs, and even little pigs. 543 244 246 231

Her Majesty presented prizes to the successful competitors in all these sections, and also to the winners of the poetry contest. 543 643

Another feature of the Show was the report of the Public Health Officer on the inspection of villages. Shields were presented to representatives of the towns and districts which had been judged the best in sanitation and appearance. These shields for annual competition had been previously donated by Her Majesty Queen Salote, H.R.H. Prince Tu'ipelehake and a former British Consul in Tonga, Mr. A. C. Reid, and his wife. 543 744 [643] [648]

The schedule has already been drawn up for the next Show, at which it is proposed to have special sections for those who have not previously won prizes. 543

[P.34-D]